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ABSTRACT

This study was designed to see if preservice elementary teachers having undergone a training intervention on business-like behavior can significantly increase their observable level of business-like behavior and maintain the level of increase ten weeks after training. The observed level of warmth was also monitored in relationship to the training intervention. The training intervention included classroom instruction, identification, and observation of business-like descriptors in classroom settings, role playing, peer teaching, and microteaching. Significant results were obtained relative to the intervention, and nonsignificant correlations found between business-like behavior and warmth. (Author/JD)

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AN ANALYSIS OF THE INFLUENCE OF A TRAINING INTERVENTION FOR BUSINESS-LIKE BEHAVIOR ON THE BUSINESS-LIKE BEHAVIOR AND LEVEL OF WARMTH OF PRESERVICE ELEMENTARY TEACHERS

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Purpose

The purpose of this study was to ascertain if preservice elementary teachers would exhibit an increase in business-like behavior in their classroom interactions with pupils without negatively affecting teacher warmth after undergoing a training intervention focused specifically on business-like behavior.

The study sought to determine the effects of the intervention and the persistence of the effects over a ten week post training period. To this end, it was necessary to a) formulate the descriptors of business-like behavior, b) develop and implement the training intervention for business-like behavior, and c) monitor the observable levels of business-like behavior and warmth throughout the pre-posttests.

Research Relating Student Achievement and Business-Like Teacher Behavior as Defined in This Study

In reviewing the history of teacher effectiveness research, contemporary researchers in teacher education are forced to admit that too little is known about the factors related to teacher effectiveness (Barr, 1961; Gage, 1963; Rosenshine, 1971; Travers, 1973; Medley, Soar & Soar, 1975; Rosenshine, 1976; Berliner, 1976).

Ryans' (1960) Teacher Characteristics Study sought to address the lack of any clear understanding of teacher behavior patterns. Hence, Ryans undertook an extensive study during the decade of the nineteen fifties to study objectively teacher behavior patterns. This work, while not primarily concerned with teacher effectiveness, was a pioneer study in analyzing teacher behavior and clearing the way for future studies on effectiveness. Ryans (1960) identified three distinct patterns of teacher characteristics, namely: Pattern X--friendly, understanding, and sympathetic; Pattern Y--responsible, business-like, systematic; Pattern Z--stimulating, imaginative, surgent.

While Ryans was interested primarily in the identification of patterns of behavior irrespective of student achievement, he did find that Pattern Y teacher behavior was highly correlated with desirable pupil behavior in teacher's classes.

In considering the literature of student achievement and teacher behavior, the review by Rosenshine (1971) constitutes:

> ... the most solid body of evidence for consistently demonstrating that teacher behavior is related to measures of student achievement. (Kennedy & Bush, 1976, p. 15)

While the total number of studies reviewed was approximately fifty, only seven of these studies related to business-like

the specific subject of the training intervention developed in this study.

Six of the seven studies related to business-like behavior reported by Rosenshine (1971) contained significant results relating teacher business-like behavior and student achievement.

Relationship Between Teacher Warmth and Student Achievement and Business-Like Teacher Behavior

While the specific training intervention developed in this study does not relate to teacher warmth, the variable was monitored in terms of a possible relationship between increases in business-like behavior and the changes in teacher warmth. Several reasons are offered for the researcher's interest in observing the variable of teacher warmth.

First, it would appear that a popular impression and general perception of practitioners is that to be business-like means that one is cold, calculating, uncaring, and controlling, and therefore anything but warm. The research indicates that such a relationship does not in fact have to exist, but hypothesizes that an increase in business-like teacher behavior in and of itself will not result in an observable decrease in the level of teacher warmth.

The researcher received rather strong support for this viewpoint from the work of David G. Ryans (1960). Ryans' Pattern X (warmth) and Y (business-like) were shown to be highly intercorrelated among elementary teachers and each Pattern was found to be highly correlated with desired pupil behavior in the classroom (Ryans, 1960). The high degree of intercorrelation would suggest that, contrary to popular perceptions, increases in business-like teacher behavior could possibly produce an increase in the level of teacher warmth.

Finally, a rather strong body of research evidence exists to support the hypothesis that teacher warmth is positively correlated to student achievement gains (Rosenshine, 1971).

Descriptive Definition of "Business-Like Behavior"

The specific descriptors used to define and measure the variable of business-like behavior are four: 1) seriousness, 2) deliberateness, 3) goal orientedness, 4) organization. These descriptors were derived from the literature, especially Ryans' Teacher Characteristics Study (Ryans, 1960) earlier studies relating business-like behavior and student achievement, and the expert opinion of recognized teacher educators.

Seriousness includes such attributes as earnestness, genuineness, and sobriety as expressed in the rational execution of the task; efficient and judicious use of time; concise, befitting verbal and nonverbal language; precise, purposeful and confident deportment; through, scholarly treatment of the content; buoyancy without levity; and natural humor devoid of frivolity, synicism, and/or sarcasm.

Deliberateness includes such attributes as purposefulness, willfulness, and thoughtfulness as expressed in the intentional execution of the task; measured and efficient use of time; intentional and precise use of verbal and nonverbal language; unambiguous, conscious, confident, deportment; concise, thoughtful and predetermined use of content. It is characterized by thoroughness but not dullness, purposefulness and determinedness, but not inflexibleness, by exactness but not unresponsive. Deliberate teaching evidences intentional, logical and/or chronological sequencing; thoughtful and intentional involvement of all students; and planned transitions from introduction to closure of lessons.

Goal orientedness refers to the teacher's singlemindedness of purpose as evidenced by such behaviors as clear, precise, unambiguous goal statements in the introduction of the lesson, unwavering, decisive movement toward the goal

in an efficient and systematic manner. It includes clear, well-developed follow-through activities unequivocally and consistently related to the goal, precise use of student input to facilitate attainment of objectives, and low incidence of vacillating or aimless approaches/comments/questions or behaviors.

Organization refers to the manner in which the means to goal attainment are orchestrated and how one uses organization as a supporting mechanism for goal attainment. Evidence of this descriptor includes such things as the preordering of facilities, ready availability of instructional materials, and well developed, systematic lessons that are related to the achievement of a specific purpose and to goal attainment. Organization includes such things as consistent, planned use of space and facilities to complement activities, materials well-prepared and readily available in advance, proper timing and pacing of the lesson in light of goals, efficient and appropriate involvement of personnel in a planned and orderly manner, utilization of content to enchance goal attainment, as well as over-all planned, systematic, goal-related control over the classroom environment.

Descriptive Definition of "Warmth"

Warmth refers to the extent to which the teacher manifests positive interpersonal relationships with the students, demonstrates sensitive and friendly behaviors, creates an atmosphere of acceptance of students and of sensitivity to their personal, academic and social needs and to the extent that he/she is open, friendly, accepting, compassionate, empathetic, concerned, positive, encouraging, supportive and loving, he or she is said to be warm. The teacher with warmth smiles easily, shows a healthy sense of humor, and uses physical contact as a positive reinforcement. These characteristics of teacher warmth are consistent with those used in the Rating Scale for Teacher Warmth from the Purdue Observer Rating Scales (1974).

Procedures and Methodology

The subjects of this study were twenty elementary education preservice teachers enrolled in a three-semester professional sequence. The three-semester professional sequence is part of a personalized, competence-oriented teacher education program which uses teaching centers as a vehicle for providing field experiences for undergraduate students. The teaching centers are contractual partnership arrangements with schools

to provide for both preservice and inservice education with a jointly appointed full-time coordinator who has faculty status in both institutions. This study was limited to preservice elementary teachers only and did not actively involve the inservice, cooperating teachers in the training or data collection.

The students had previously been involved in a four-hour per week tutoring experience in the semester prior to beginning their three-semester sequence. During the first semester of the professional sequence each of the preservice teachers had spent approximately three-fifths of his/her time in university instructional settings and two-fifths in a teaching center working in a classroom directly with teachers and students. The actual time in the field was from 8:30 a.m. to 3:30 p.m. for a semester of fifteen weeks.

At the time that the actual training in business-like behavior was conducted these preservice elementary teachers were in the second semester of the sequence which involved three full days per week for a semester in the teaching centers.

The students had progressed into the third semester of their professional sequence (which calls for five full days a week in the public schools for a full fifteen-week semester,

similar to traditional student teaching) by the time that posttests II and III were conducted.

The training intervention took place as an elective minicourse within the undergraduate professional education program, but was not a requirement. The delivery format for the training intervention was a minicourse which the twenty students elected to take. The students were aware that video-taping across two semesters would be required and that the class would be split into two groups. They were not told, however, of the purpose or focus of the research or of their assignment to either a control or experimental group.

The specific training intervention (seven weeks) for the Experimental Group included: 1) university classroom instruction in the descriptors of business-like behavior; 2) indentification and observation of these descriptors in classroom settings; 3) role playing practice; 4) peer teaching; 5) microteaching.

Data were gathered on all students by video-taping a twenty minute teaching episode in a regular classroom situation: a) just prior to the training intervention, b) immediately after the training period, c) five weeks after the training period ended, and d) ten weeks after the training period ended.

The Experimental Group was a randomly assigned group of elementary preservice teachers who were one-half of the second

semester preservice teachers who voluntarily signed up for a mini-course that related to business-like behavior. The students assigned to the Experimental Group underwent a detailed training intervention specifically designed to increase their level of business-like teaching behavior. The Control Group was comprised of the remaining half of the preservice teachers electing to take the mini-course. The Control Group also was unaware of the research design and received no specific training in business-like behavior. Random assignment of preservice teachers was achieved by utilizing the Random Table of Numbers.

Business-like behavior and teacher warmth constituted the dependent variables. The training intervention constituted the independent variable.

Statistical analyses were based on the differences between the means with a repeated measures design. More specifically, a two-factor mixed design, with repeated measures on one factor, analysis of variance was utilized.

The specific Analysis of Variance design was selected since it permitted not only a comparison of differences in the over-all performance of both Experimental and Control Groups but also a comparison within groups. This design was also used to determine if the variances were significant.

The test of simple effects was employed to study the level of significance of changes within treatment periods and the Tukey (a) was used to determine the level of significance of changes within groups between posttest.

In addition, coefficient alpha was employed in an effort to determine the consistency and reliability with which the business-like behavior descriptors were being rated during observations.

Product-Moment Coefficients of Correlation were calculated in an effort to determine the inter-correlations of the four descriptors defining business-like behavior. Since the four descriptors are being used to describe a single behavior, business-like, one might expect high intercorrelations; however, extremely high correlations normally would suggest refinements should be made in the descriptors of the behavior.

Means and standard deviations were used for a point of departure for discussion of the data and to graphically demonstrate the levels of performance of the Experimental and Control Groups.

The Spearman-Brown Prediction Formula was utilized (during the training of observers and during the rating of the observations) to determine a respectable interrater reliability (.90 or higher).

Due to the lack of evidence of interdependence between the variables of warmth and business-like behavior for the Experimental Group, no statistical analysis of the data regarding warmth was carried out.

Hypotheses

H_1: There will be a significant increase in the observable level of business-like behavior of the Experimental Group of preservice elementary teachers immediately after undergoing a training intervention specifically designed to increase their level of business-like behavior.

H_2: There will be no significant increase in the observable level of business-like behavior of a Control Group not receiving training in business-like behavior.

H_3: There will be no significant decrease in the observable level of business-like behavior of the Experimental Group as measured immediately after undergoing training and five weeks after undergoing training.

H_4: There will be no significant decrease in the observable level of business-like behavior of the Experimental Group as measured immediately upon completion of the training and ten weeks thereafter.

H_5: The Experimental Group will display no significant decrease in their observable level of warmth in the calssroom, having undergone a treatment designed to increase their observable level of business-like behavior.

Training Intervention - Experimental Group

The training intervention took place over a seven-week period with classes meeting once a week and the discussion focused on the definitions of the concepts and the possible relationships between and among them.

Students were asked to specify the more significant roles that a teacher plays and the more significant problems that teachers face. The field experiences encountered during the previous semester and a half were the context from which the students specified roles and problems.

Students were consistently asked to provide a rationale for why the roles/problems were considered significant. This process provided a means of assuring the instructor that the students were focusing on the relationship between teacher behavior and pupil learning during the discussion.

Many of the identified roles and problems related to such areas as discipline, planning, and a lack of motivation. The preservice teachers were open to the study of business-like behavior, especially as defined by the four descriptors set forth by this researcher: seriousness, deliberateness, goal orientedness, and organization.

A discussion of the finding relating to business-like behavior and pupil achievement provided a further incentive for the students to become involved in an examination and improvement of their own teaching behavior.

Students were given the "Descriptors of Business-like Behavior" and the "Rating Scale for Business-Like Behavior" was outlined at this time. They were asked to read and to raise questions concerning the specific behaviors under each of the descriptors. A general question/answer/discussion for the purpose of clarifying aspects of the descriptors followed.

In order to familiarize themselves more clearly with the variable, the students were asked to apply the operational definition to a lesson that each would teach during the next week. Specifically, they were asked to critique the lesson in terms of each of the descriptors, and to be prepared to discuss their findings at the next class.

Session Two. Each student reported in a three-to five-minute presentation on the assignment. These presentations were done orally in an effort to provide a reinforcing effect on each student by hearing how each of his/her peers utilized the descriptors of business-like behavior in his/her lesson.

Following these presentations the students were asked to take the specific classroom behaviors outlined on the descriptors sheet and role play settings in which they would demonstrate the behaviors. Following the role playing the other students were expected to identify the behavior being demonstrated and relate it to the proper descriptor. The student continued to role play until the behavior was correctly identified. During this session

only the descriptors of seriousness and goal orientedness were treated.

For the next session students were asked to make a ten-to fifteen-minute observation during the week of an unidentified classroom teacher. They were asked to either identify the presence of business-like behaviors indicating seriousness and goal orientedness or to show how such behaviors could have been evidenced during the observation period. All student comments required a justification in terms of the specific descriptions of business-like behavior and the four descriptors given to the students in Session One.

It should be noted that anonymity of the teacher subjects of the observations in Sessions Two and Three was maintained. Since the nature of the field experience allowed a student to come into contact with more than one teacher during a week in observation settings, anonymity could be preserved with ease.

Session Three. Students shared the results of their observations in small groups of five members. The smaller groups allowed each student to report and receive feedback and hence receive reinforcement from four peers on the two descriptors under study.

Following these reports the students continued the role playing activity described in Session Two with the focus being on the remaining two descriptors of deliberateness and organization.

The observation assignment of Session Two was repeated. Rather

than reporting back on the observation, however, students were asked to prepare a twelve-to fifteen-minute peer-teach lesson based upon their observations with the understanding that their lessons would be critiqued by their peers in terms of the demonstration of all four descriptors of business-like behavior.

Session Four. The students divided into two groups of five and conducted peer teaching. Each group had a University staff member present who was familiar with the descriptors and the expected outcomes of the peer teaching assignment.

Following each peer teaching episode the University staff member conducted a short discussion. Feedback was given to the student on his/her performance relative to business-like behavior by the four peer observers and University staff members. Observers were required to be specific in terms of the operational definition of business-like behavior and were cautioned against making general comments relative to the over-all quality of instruction. Since the episodes were video-taped, observers and teachers were able to refer back to specific parts of the lesson to demonstrate or to clarify examples of the specific behaviors. Each of the preservice teachers was required to complete the peer teach/observer sequence of the treatment. Each was also given the opportunity to reteach the lesson if he/she so chose. At the end of the session the University staff member conducted a general summary and review. The Bush and Allen (1967) paper, "Microteach-

ing", was also distributed at this time and students were asked to read it for the next session.

The discussion of teacher effects and the descriptors of business-like behavior, the analysis and critique of the student's own lession, the role playing and observation of four other students in relation to the performance levels outlined in the "Rating Scale" were meant to give the student a thorough knowledge and understanding of the specific indicators of business-like behavior.

The completion of the peer-teaching ended Phase One of the training intervention. Successful completion was based upon each student's ability to complete the assignments and participation in the described activities.

Phase Two--Training Intervention

The peer teaching was meant to serve as both a culmination of Phase One with its emphasis on a solid cognitive understanding of the specific behaviors and descriptors related to business-like behavior and an introduction to Phase Two of the training intervention. Phase Two focused on assisting the preservice teacher in incorporating the elements of business-like behavior into his/her own teaching in the field setting in which he/she was assigned.

Session Five. The students and instructor met to discuss the next phase of the training: microteaching. The descriptive paper on "Microteaching" (Bush & Allen, 1967) which had been

distributed to each student at the end of Session Four was explicated. Microteaching sessions were designed to follow the traditional pattern of preconference-teach-conference-reteach with the inclusion of videotape as a feedback mechanism and support for the conferencing session.

Directions to the students for the microteaching called for each student to prepare a ten-minute lesson of his/her choosing wherein the elements of business-like behavior could be exemplified. Students were to arrange with their classroom teachers to teach the lesson to each of two groups of three to five elementary pupils. In each Center space was available where the lessons could be taught. The instructor then went to the individual field locations at the prearranged times to conduct the microteach session with videotaping. On location the students had made arrangements with the cooperating teacher to be out of the classroom with the instructor/researcher for at least a one-hour period of time, including the reteaching of the lesson.

The preservice teacher and instructor then preconferenced on the business-like descriptors. At this time the student explained how he/she intended to demonstrate the variable during the lesson.

The preservice teacher then taught the lesson (which was recorded on videotape) to one of the two small groups of elementary pupils. The teaching was followed by a post conference during which the lesson was critiqued, reviewed on videotape, and

analyzed by the instructor and student using the business-like descriptors as defined earlier. Specific instances of business-like teacher behavior were reinforced and specific recommendations were made to improve the preservice teacher's ability to demonstrate such behaviors. The preservice teacher then retaught the lesson to the second small group of elementary pupils incorporating the mutually agreed upon suggestions and changes into the lesson.

At the conclusion of the microteach session each student was told he/she should arrange to teach one lesson of twenty minutes duration to be video-taped during the following week and to attend a final University-based class session.

All microteaching episodes took place within a one week time period followed by the videotaping of the student in a total classroom context during the next week and prior to Session Six.

Session Six. At the final session a general discussion of the total experience and a clarification of questions regarding the variable and descriptors took place. Students were also reminded at this time that although they would be receiving a grade, they would be videotaped five weeks later and again five weeks thereafter in conjunction with the course. In explanation of the future videotapes, students were told that the purpose was to supply information on relating campus and field instruction regarding possible follow-up activities to instruction and to supply feed-back information to the instructor.

Control Group Experience During Time of Training Intervention

The Control group did not undergo the specific training intervention designed to increase business-like behavior. Since the preservice teachers in the Control group did register for an elective mini-course, they did receive instruction.

Basically the instruction dealt with the topics of group process and decision-making, problem-solving, behavioral objectives, module development, and norm referenced and criterion referenced testing.

With reference to the area of group process and problem solving, students went through the exercise of the NASA experiment for purposes of analyzing the process of forced choice decision-making. The students also studied the force-field analysis methodology for approaching problems and clarifying goals.

In considering the topic of behavioral objectives, students studied the basic types of objectives and the basic components of a behavioral objective. Students also had experience in identifying and practice in writing such objectives.

Selection and Training of Raters

In conjunction with the rating of videotapes, two raters who were experienced both as teachers and administrators were trained to evaluate the Control and Experimental videotapes for both business-like behavior and teacher warmth. Both raters had extensive experience in supervision and in the application of objective observation instru-

ments to the supervisory setting. Ratings of tapes for business-like behavior and warmth were independent of each other. For both variables the Spearman-Brown Prediction Formula was utilized to calculate interrater reliability. A minimal level of .90 was obtained before raters examined the tapes. This reliability was also checked periodically as raters examined the eighty video-tapes to insure rater reliability.

Differences Between Control and Experimental Groups Regarding Business-like Behavior

The Experimental Group showed a marked increase in raw scores (Tables 1 and 2) and mean scores (Table 3) as compared to the Control Group in relationship to Posttest I and Posttest III scores. In order to examine these data more clearly in terms of the significance of the variance, a two factor mixed design with repeated measures, analysis of variance was utilized.

Table 4 summarizes the data from this statistical analysis. Based upon this table and Figure 1, the following observations may be made: 1) the Experimental Group demonstrated an over-all significant increase in their level of business-like behavior: $F(1, 19) = 5.799$, $p < .05$. Thus H_1, that there will be a significant increase in the observable level of business-like behavior of the Experimental Group immediately after undergoing the training intervention, is accepted. 2) Subjects in both Groups changed their level of business-like behavior as a result of practice

$F(3, 54) = 15.924$, $p < .05$. 3) The amount of increase appeared to be related to the treatment, $F(3, 54) = 6.112$, $p < .05$.

Figure 1 demonstrates that the Experimental Group which began at a lower mean score level ($X = 27.1$) as compared to the Control Group ($X = 28.6$) increased dramatically in Posttest I, decreased in Posttest II and increased dramatically in Posttest III. A similar, but not as dramatic a pattern was noteworthy for the Control Group.

Table 5 presents a simple effects test to examine the data within the Experimental and Control Groups and the level of significance within treatment periods. A Tukey (a) pairwise comparison was used to examine the level of significance in the Experimental and Control Groups between observations.

Analysis of Table 5 shows that there was no significant difference between Experimental and Control Groups on the Pretest and at Posttest II. Also, the data demonstrate a significant difference between Experimental and Control Groups at Posttest I and Posttest III.

Further analysis based upon Tukey (a) comparisons at the bottom of Table 5, showed that there was no significant increase or decrease in the level of business-like behavior between Pretest and Posttest I or II or III or between the Posttests for the Control Group. Therefore, H_2, that there will be no significant increase in the observable level of business-like behavior of the Control Group not receiving training, is accepted (P x I = N.S.).

Table 1

OVER-ALL RAW SCORE TOTALS FOR BUSINESS-LIKE BEHAVIOR IN CONTROL AND EXPERIMENTAL GROUPS DURING OBSERVATIONS

Control Group				
Subjects	Pretest[a]	Posttest I[b]	Posttest II[c]	Posttest III[d]
1	29	23	21	19
2	26	20	16	26
3	41	33	42	41
4	24	42	16	17
5	16	45	46	43
6	47	16	36	37
7	18	45	16	46
8	31	49	37	32
9	16	37	19	16
10	38	51	44	53
Total	286	361	293	330

Experimental Group				
Subjects	Pretest[a]	Posttest I[b]	Posttest II[c]	Posttest III[d]
1	21	36	16	56
2	27	53	22	44
3	31	71	35	77
4	28	39	20	36
5	20	37	20	35
6	39	56	45	47
7	16	77	44	72
8	35	64	31	52
9	31	66	50	58
10	22	45	38	48
Total	270	544	321	525

[a]Prior to training.

[b]Immediately after training.

[c]5 weeks after b.

[d]10 weeks after b.

Table 2

RAW SCORE DESCRIPTOR TOTALS FOR EACH SUBJECT
IN BOTH GROUPS DURING OBSERVATIONS

	Observations on Descriptors of Business-Like Behavior															
	Seriousness				Deliberateness				Goal Orientedness				Organization			
Subjects	P[a]	I[b]	II[c]	III[d]	P[a]	I[b]	II[c]	III[d]	P[a]	I[b]	II[c]	III[d]	P[a]	I[b]	II[c]	III[d]
							Control Group									
1	11	9	6	4	4	4	4	4	8	5	6	5	6	5	6	6
2	7	8	4	7	6	4	4	6	7	4	4	6	6	4	4	7
3	8	9	12	9	11	7	9	9	10	7	12	12	12	10	9	11
4	6	11	4	11	6	13	4	10	6	9	4	10	6	9	4	11
5	4	13	12	12	4	11	12	12	4	12	8	7	4	9	14	12
6	13	4	10	8	11	4	10	10	11	4	8	8	12	4	8	11
7	4	12	4	11	5	12	4	13	4	9	4	12	5	12	4	10
8	8	13	12	8	9	11	9	8	6	13	8	8	8	11	8	8
9	4	11	5	4	4	8	5	4	4	8	4	4	4	10	5	4
10	10	15	12	12	11	12	12	15	8	12	9	12	9	12	11	14
Total	75	105	81	86	71	86	73	91	68	83	67	84	72	86	73	94
							Experimental Group									
1	6	9	4	14	7	8	4	14	4	9	4	14	4	10	4	14
2	8	13	5	12	8	12	5	12	4	14	6	9	7	14	6	11
3	8	17	9	18	8	17	8	19	8	18	8	20	8	19	10	20
4	6	9	5	9	4	8	5	9	7	11	6	9	11	11	4	9
5	4	9	4	11	4	12	5	8	4	8	4	8	8	8	7	8
6	10	12	12	12	7	12	12	12	10	16	11	11	12	16	10	12
7	4	18	12	16	4	20	10	20	4	20	10	16	4	19	12	20
8	10	16	9	12	7	16	7	12	8	16	7	12	10	16	8	16
9	12	18	12	16	4	16	14	16	11	16	12	13	4	16	12	13
10	8	11	10	12	4	12	10	12	4	12	9	12	6	10	9	12
Total	76	132	82	132	57	133	80	134	64	140	77	124	74	139	82	135

a = prior training; b = immediately after training; c = 5 weeks after b; d = 10 weeks after b.
P = Pretest; I = Posttest I; II = Posttest II; III = Posttest III.

Table 3

COMPARISON OF THE MEAN SCORES AND STANDARD DEVIATIONS IN BUSINESS-LIKE BEHAVIOR OF THE EXPERIMENTAL AND CONTROL GROUPS

Descriptors		Pretest		Posttest I		Posttest II		Posttest III	
		M	SD	M	SD	M	SD	M	SD
Seriousness	E	7.6	2.6	13.2	3.8	8.2	3.4	13.2	2.7
	C	7.5	3.1	10.5	3.1	8.1	3.8	8.6	3.0
Deliberateness	E	5.7	1.8	13.3	3.9	8.0	3.4	13.4	3.9
	C	7.1	3.1	8.6	3.7	7.3	3.4	9.1	3.7
Goal Orientedness	E	6.4	2.8	14.0	3.9	7.7	2.8	12.4	3.6
	C	6.8	2.5	8.3	3.3	6.7	2.8	8.4	3.0
Organization	E	7.4	3.0	13.9	3.9	8.2	2.9	13.5	4.1
	C	7.2	3.0	8.6	3.1	7.3	3.4	9.4	3.1
Total Score	E	27.1	7.2	54.4	14.8	32.1	12.1	52.5	13.8
	C	28.6	10.8	36.0	12.6	29.3	12.8	33.0	13.1

E = Experimental Group
C = Control Group

Table 4

ANALYSIS OF VARIANCE: SIGNIFICANCE OF THE OVER-ALL OBSERVED PERFORMANCE OF THE EXPERIMENTAL AND CONTROL GROUPS
(N = 20)

Source	SS	df	MS	F	Over-all p
Total	19,110.7470	79	241.9082		
Between Subjects	7,802.2493	19	410.6447		
Business-like Behavior, E & C Groups	1,901.2500	1	1,901.2500	5.799	< .05
Error	5,900.9994	18	327.8333		
Within Subjects	11,308.5000	60	188.4750		
Observations	4,497.8496	3	1,499.2832	15.924	< .05
Observations x Business-like Behavior	1,726.4502	3	575 4834	6.112	< .05
Error	5,084.2026	54	94.1519		

Note: $p = .05$.

E = Experimental Group
C = Control Group

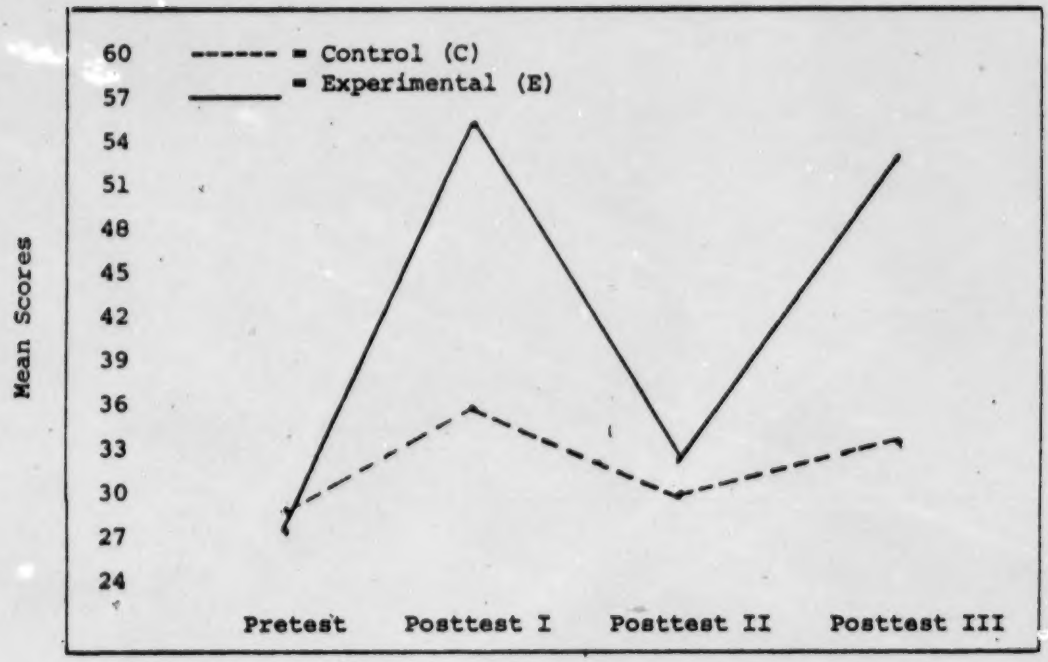

Fig. 1. Mean Ratings of Performance by Groups in Teacher Business-like Behavior.

For the Experimental Group significant differences ($<.05$) were found between Pretest and Posttest I and III, and between Posttest I and Posttest II, and Posttest II and Posttest III. Hence, Hypothesis 3, that there will be no significant decrease in the observable level of business-like behavior for the Experimental Group as measured five weeks after treatment cannot be accepted.

Hypothesis 4, that there will be no significant decrease in the observable level of business-like behavior of the Experimental Group as measured upon completion of training and ten weeks after the training intervention is accepted (cf. Table 5: I x III = N.S.).

Additional statistical analyses for each of the four descriptors support the overall data as reported.

Teacher Warmth

The raw data for each of the Subjects for the variable of teacher warmth was measured on the six point Purdue Observer Scale for Teacher Warmth, as displayed in Table 6.

In the absence of any observable consistent pattern of dependency between warmth and business-like behavior scores for the Experimental Group, Hypothesis 5, that the Experimental Group will display no significant decrease in their observable level of warmth having undergone a treatment designed to increase their observable level of business-like behavior, is accepted.

Table 5

ANALYSIS OF VARIANCE: SIGNIFICANCES OF THE OVER-ALL OBSERVED PERFORMANCES OF THE EXPERIMENTAL AND CONTROL GROUPS DURING EACH OBSERVATION

Source	MS	df	F	p
A at b_1	12.80	1	.083890	N.S.
A at b_2	1,674.45	1	10.974800	< .0125
A at b_3	39.20	1	.256900	N.S.
A at b_4	1,901.25	1	12.461307	< .0125
B at a_1	364.10	3	3.867000	< .0250
B at a_2	5,860.20	3	62.281970	< .0250

A = 1) Control Group, 2) Experimental Group.
B = 1) Pretest, 2) Posttest I, 3) Posttest II, 4) Posttest III.

ANALYSIS OF VARIANCE: SIGNIFICANCE OF THE OVER-ALL OBSERVED PERFORMANCES OF EACH GROUP BETWEEN OBSERVATIONS (p = .05)

Source	P x I	P x II	P x III	I x II	I x III	II x III
Control	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Experimental	< .05	N.S.	< .05	< .05	N.S.	< .05

P = Pretest
I = Posttest I
II = Posttest II
III = Posttest III

In summary, results of the analysis demonstrated that:

1) There was no significant difference in the levels of business-like behavior and warmth between Experimental and Control Groups at the time of the Pretest;

2) The Control Group did not show a significant increase ($< .05$) in its observable level of business-like behavior at the time of Posttest I;

3) The Experimental Group did show a significant increase ($< .05$) in their observalbe level of business-like behavior at the time of Posttest I;

4) This increase in business-like behavior for the Experimental Group persisted when measured ten weeks after training;

5) While the level of business-like behavior for the Experimental Group increased, the level of warmth remained consistant.

Conclusions and Future Implications

The data demonstrate that it is indeed possible to train preservice teachers to increase their observable level of business-like teaching behavior as described by seriousness, deliberateness, goal orientedness, and organization.

Furthermore the data suggest that an increase in business-like behavior need not have an adverse effect on the observable level of teacher warmth.

The data further suggest that the effects of the training intervention can be demonstrated to persist ten weeks after training. Since business-like behavior has a strong research base for being correlated with student achievement, the study has some

Table 6

OVER-ALL RAW SCORE TOTALS FOR TEACHER WARMTH FOR EACH SUBJECT IN CONTROL AND EXPERIMENTAL GROUPS DURING OBSERVATIONS

Control Group				
Subjects	Pretest[a]	Posttest I[b]	Posttest II[c]	Posttest III[d]
1	5	6	5	6
2	4	4	4	3
3	5	4	4	5
4	5	5	4	4
5	3	5	4	4
6	3	3	6	6
7	4	2	3	3
8	4	4	5	5
9	4	4	5	5
10	4	5	5	5
Total	41	41	43	45

Experimental Group				
Subjects	Pretest[a]	Posttest I[b]	Posttest II[c]	Posttest III[d]
1	6	3	3	4
2	6	4	3	3
3	3	4	3	4
4	5	5	4	5
5	3	3	3	3
6	3	3	3	4
7	4	4	3	4
8	4	5	5	5
9	3	6	6	5
10	4	4	5	4
Total	41	41	38	41

a = prior to training
b = immediately after training
c = 5 weeks after b
d = 10 weeks after b

implications for training programs, although replication for validation purposes is needed.

Future research in the area of teacher effectiveness might also use the training intervention to investigate further the relationship between business-like behavior of the teacher and pupil achievement gains, as well as other variables such as content, student socioeconomic status, sex, and grade levels. Since the level of business-like behavior can now be measured, one might also be able to investigate the dimensions of business-like behavior in response to the question "How business-like do I need to be?"

Researchers may also wish to look at the elements of the training intervention in terms of their effectiveness independent of the total intervention, i.e., peer teaching, microteaching, and time of training. They may also investigate the discrete descriptors independently of each other, as well as whether pupils perceive what is described as business-like behavior in this study as a desirable aspect of teacher behavior.

The persistence of the behavior beyond the preservice level even into the first year of teaching and/or the need for periodic inservice to maintain the achieved level of performance may also be factors for future research.

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